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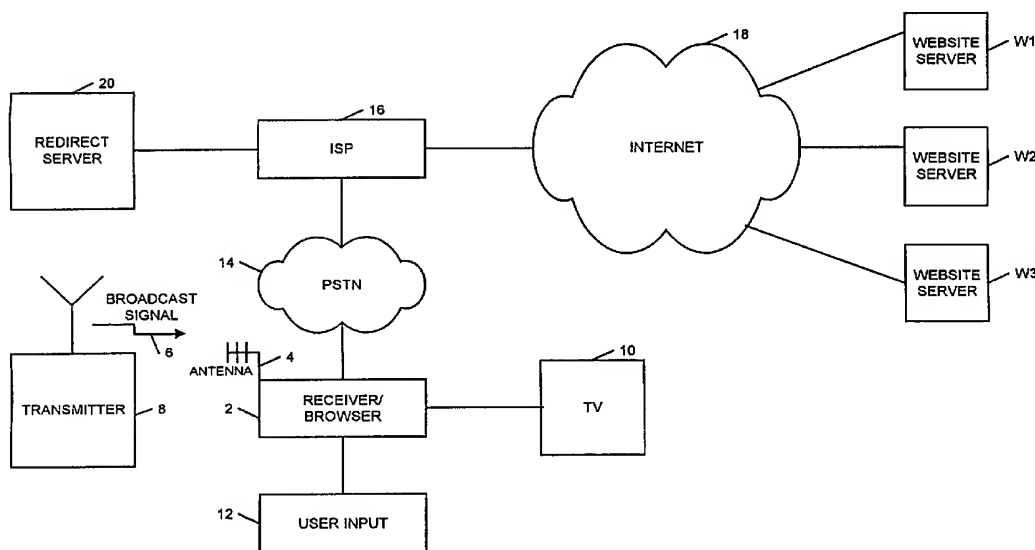
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[Continued on next page]

(54) Title: VIDEO BROADCASTING AND INTERNET ACCESS

(57) Abstract: A method and system for generating video broadcast data in which trigger data is inserted into a datastream of a programme to be broadcast. Also described is a method and system for processing video braodcast data. The programme datastream including the trigger data is received and the trigger data is extracted. A user prompt is provided, and if the user responds to the prompt is provided, and if the user responds to the prompt a trigger index value extracted from the trigger data is transmitted to a redirect server. The redirect server contains look-up tables from which a corresponding website address is read off, and communicated back to the receiver. The receiver can then access the website address, which is associated with the programme that contained the trigger data. Application to broadcasting systems complying with the DVB, MPEG-2 and ATVEF standards is described.

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VIDEO BROADCASTING AND INTERNET ACCESS

The present invention relates to television or video
broadcasting and accessing of information networks such
as the Internet. The present invention is applicable to,
but not limited to, digital video broadcasting in
compliance with the DVB standards as issued by ETSI which
themselves cite the MPEG Video Standard: ISO/IEC 13818-2:
Information technology - generic coding of moving
pictures and associated audio information: video (1996)
(aka ITU-T Rec. H-262 (1996)) (hereinafter referred to
as the MPEG-2 standard). The present invention is further
applicable to, but not limited to, the Advanced
Television Enhancement Forum (ATVEF) specification for
Enhanced Content Specification (hereinafter referred to
as the ATVEF specification).

Currently, the most common arrangement for accessing
information networks such as the Internet comprises a
browser application operating on a personal computer
(PC), and with retrieved data content, such as web pages,
being displayed on a monitor coupled to the PC. However,
it is also known to provide an arrangement comprising a
browser application operating in conjunction with a
television or video receiver, with the retrieved data
being displayed on the display of a television which is
either integral with or coupled to the receiver.

The use of a browser in conjunction with a
television receiver produces opportunities for presenting
and using Internet content in relation to the content of
broadcast television programmes. The various
opportunities offered are generally termed interactive

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television experiences.   The ATVEF specification specifies content format and delivery mechanisms for these, enabling Internet related (i.e. HTML-enhanced) television content to be broadcast across any
5   broadcasting network to any ATVEF compliant receiver.

One particular interactive facility that is known is the inclusion, in broadcast video signals, of a "trigger" containing a universal resource locator (URL) (sometimes referred to as a uniform resource locator) or website
10   address. The trigger is recognised by the television receiver and in response to a user input, the browser will log on to the Internet and access the URL.

In order to access the website associated with the URL, the browser sends the URL (specifically the URL up
15   to the top-level domain name - e.g. .com or .co.uk - not including anything to the right of this - e.g. /radio4) to a Domain Name System (DNS) server. The DNS server looks up the associated Internet Protocol (IP) address of the server on which the website associated with the URL
20   is hosted and sends this back to the browser. The browser then sends the URL (including anything to the right of the top-level domain name) to the specified IP address. The host server then processes the received URL and transmits the appropriate website data to the
25   browser.

Generally, such a facility enables viewers to be provided with easy access to websites whose contents are related to the contents of the television programmes the viewers are currently watching. For example, viewers can
30   be directed to a website associated with a particular television advertisement, or to a website containing more

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information relating to a documentary programme.

It is noted that the terminology "programme" and "television programme", as used in this specification, is not restricted to any particular content or structure of content, and hence includes items such as advertisements, live news or sports broadcasts, previews and so on.

A protocol conventionally employed for processing such triggers is defined in Section 1.1.5 of the above mentioned ATVEF specification for receipt of triggers contained in an analogue broadcast format, in particular where the data defining a trigger is provided in a vertical blanking interval (VBI) line of an analogue video signal.

Various disadvantages and limitations arise with receiver/browser arrangements provided to date within the framework of the ATVEF specification. Moreover, "in the clear" transmission of the explicit URL information as part of the trigger removes areas of control from either the broadcaster of the television programmes or the Internet service provider providing Internet access to the receiver/browser apparatus. Because the receiver/browser apparatus will respond to direct URL information contained in the broadcast programmes, end users will be directed to website addresses provided by the suppliers of the programmes without the consent of the broadcaster of the programmes or the Internet service provider. Also it is not possible for the broadcaster or the Internet service provider of the receiver/browser apparatus to control the time when end users access the indicated websites. These disadvantages arising from the lack of control are magnified when present arrangements

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are applied to digital video broadcasts rather than analogue broadcasts, since the increased levels and forms of interaction rendered possible by the increased data content of digital broadcasting are diluted or reduced by
5   such inflexibility and lack of control.

In a first aspect the present invention provides a broadcast system which enables link data provided with a broadcast programme to be forwarded to a redirect server which can determine from the link data a website address
10   which corresponds to the broadcast programme.

In a second aspect the present invention provides a broadcast system which inserts link data including index values into programme feeds, and provides look-up tables of the index values cross-referenced to website addresses
15   to a redirect server, and means for broadcasting the programme feeds including the link data to a user apparatus, the user apparatus comprising means to recognise and extract the link data with respect to a programme being displayed on a television screen by the
20   user apparatus, and for prompting the user to enter a command in response to which the user apparatus transmits the index value to the redirect server, the redirect server being arranged to compare the index value with its look-up table and reply to the user apparatus with the
25   corresponding website address such that the user apparatus can then call up the indicated website address.

In a further aspect, the present invention provides a broadcast receiver and Internet browser arrangement which accesses websites on the Internet which are
30   associated with broadcast programmes received by the broadcast receiver, by means of extracting identity data

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included in the broadcast signal and forwarding the identity data to a look-up table which provides the required website address.

In a further aspect the present invention provides
5 a system for managing the scheduling of link data or trigger data for insertion into programme feeds, and corresponding provision of the link data or trigger data to a server, such that the trigger data or link data included in a multiplex broadcast can be employed by end
10 users to access the trigger data or link data in the server, thereby determining the identity of a website address linked to a broadcast programme.

The present invention also provides a digital datastream generated by a broadcast system in accordance
15 with the above described first and second aspects of the invention.

The present invention advantageously provides a form of video broadcast/Internet access interaction that can require involvement of the broadcaster or Internet
20 service provider in the process for accessing the websites, as the need to broadcast explicit URL information in the clear is removed. The present invention therefore allows a broadcaster or other operator to have a greater level of control over the way
25 in which end users access the Internet, including a greater level of control over which portal the end user goes through, the timing of the end user's access to the Internet, and indeed which website addresses may be included in the triggers. The present invention further
30 allows an optional facility in which different end users can be directed to different website addresses in

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response to a common trigger.

Throughout, the term public address will be used to refer to an address such as a URL, in the clear, or an IP address which can be used by any conventional browser connected to the Internet to access a specified website. By contrast, the term trigger index refers to a code which must first be de-coded into, or replaced with, a public address in order for a browser to access the associated website in a conventional manner.

Embodiments of the present invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 is a schematic illustration of a video broadcast/Internet access system;

Figure 2 is a block diagram illustrating a system for providing a trigger data/website address look-up table to a redirect server and for inserting trigger data into broadcast data;

Figure 3 illustrates the contents of a trigger data/website address look-up table;

Figure 4 is a block diagram illustrating a separate receiver and browser;

Figure 5 shows the processing operations performed by the receiver and browser illustrated in Figure 4 and a redirect server;

Figure 6a illustrates contents of a look-up table including browser serial number data; and

Figure 6b is a further look-up table including browser serial number data.

Figure 1 is a schematic illustration of a video broadcast/Internet access system according to a first

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embodiment of the invention. By way of example, one receiver/browser apparatus 2 is shown, although in practice many more receiver/browser apparatus are included in the system.

5   The receiver/browser apparatus 2 comprises an antenna 4 for receiving a broadcast signal 6 transmitted by a transmitter 8 at RF frequencies, and the receiver/browser apparatus 2 is connected to a television 10 for displaying received programmes. In the present

10   embodiment, the broadcast signal 6 is in a digital format and comprises a multiplexed datastream containing various television programmes formatted according to the MPEG-2 standard and broadcast in accordance with the DVB standards. The receiver/browser apparatus 2 is arranged

15   to receive and process the broadcast signal 6 in conventional manner in compliance with the DVB standards, so as to provide an analogue video output to a conventional analogue television 10.

           The receiver/browser apparatus 2 additionally

20   functions as an Internet browser. With respect to this function an end user employs a user input means 12 to perform conventional user control operations such as inputting instructions to log on to the Internet and inputting specific uniform resource locators (URLs) or

25   website addresses. In the present embodiment the user input means 12 comprises an infrared keyboard arranged to communicate with an infrared sensor in the receiver/browser apparatus 2, as will be explained in further detail below with reference to Figure 4. Also,

30   retrieved Internet content is displayed on the television 10.

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When the receiver/browser apparatus operates as a browser, it connects to the Internet 18 via a public switched telephone network (PSTN) 14 and an Internet service provider (ISP) 16.

5   When the browser is operating in conventional mode, the user inputs a website address (i.e. URL) using the user input means 12 and the receiver/browser apparatus 2 logs on to the ISP 16 and accesses a website server W1, W2, W3 providing the website. In response the website

10   server W1, W2, W3 transmits web page data back to the receiver/browser apparatus 2 in conventional fashion.

The present embodiment provides an additional way in which URLs (i.e. website addresses) served by specific website servers W1, W2, W3 are accessed. Trigger data

15   related to a programme being broadcast is also included in the broadcast signal 6. The receiver/browser apparatus 2 detects the trigger data and adds an icon and a text prompt on top of the television picture. In response to the added icon and/or text, the user can

20   enter or affirm an instruction for the receiver/browser apparatus to access the Internet.

In the present embodiment the trigger data contains a trigger index value. In response to the user's input, the receiver/browser apparatus 2 employs its browser mode

25   to access a redirect server 20 by logging on to the ISP 16 via the PSTN 14. The redirect server contains look-up tables in which trigger index values are associated with specific website addresses. The trigger index/website address look-up table at the redirect

30   server is provided so that when a user responds to the trigger data during a particular television programme, he

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can ultimately be connected to a website address that is associated with the content of that television programme. (To this end, in the present embodiment, the provision of the look-up table to the redirect server 20 and the incorporation of the trigger data into the broadcast signal 6 are jointly managed by a common trigger schedule controller, as will be described in more detail below with reference to Figure 2. It will be appreciated from the above that the trigger data forms link data linking a broadcast programme and a specific website). The redirect server 20 sends the appropriate website address specified by the look-up table back to the receiver/browser apparatus 2, which then automatically accesses the corresponding website server W1, W2, W3 via the PSTN 14, ISP 16 and Internet 18.

Figure 2 shows a block diagram illustrating an arrangement for providing a trigger data/website address look-up table 42 to the redirect server 20 and for incorporating corresponding trigger data T1,T2 into a multiplexed broadcast datastream 36 provided to the transmitter 8 for broadcasting as the broadcast signal 6.

In the present embodiment a broadcasting organisation (hereinafter referred to as the broadcaster) receives programme feeds from a plurality of different service providers, including service providers S1 and S2 as shown by way of example in Figure 2. The broadcaster maintains overall control of the allocation and scheduling of trigger data using a trigger schedule controller 32.

The trigger schedule controller 32 formats the content of trigger data T1 and forwards it to the service

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provider S1 for incorporation into a programme feed. In
the present embodiment, the trigger data is of the
following form:

<trigger index value> [n:text string][e:expiry date

5   and time](checksum)

The letter "n:" indicates that a name field is to
follow and the text string inserted in the name field
was, in the present embodiment, specified by the service
provider S1 and notified in advance to the broadcaster.

10   This text will later be displayed to the end user. In
the case of the trigger data T1, the text says "hit
Return to find out more via the Internet".

The letter "e:" indicates a date/time field is to
follow. The value of the date/time inserted in this field

15   specifies an expiry time and date which will later be
used by the receiver/browser apparatus 2 on receipt of
the broadcast signal 6 to determine whether the trigger
data is still valid at the time of receipt. In the
present embodiment this value is input by the

20   broadcaster, using knowledge of the intended time of
broadcast of the corresponding television programme. By
controlling specification of the expiry time and date,
the broadcaster can ensure, for example, that a first
trigger expected to lead to a high level of use of the

25   redirect server 20 expires before a second trigger also
expected to lead to a high level of use of the redirect
server 20 is transmitted.

The trigger index value is a twelve digit number
allocated by the broadcaster to the particular trigger

30   data T1. The trigger index value will later be used by
the redirect server to determine which website   the

receiver/browser apparatus 2 should ultimately access, as
will be explained in more detail below.

In the present example, the trigger index value
allocated to the trigger data T1 is the value
123456789123.

The "checksum" is an error check value used to allow
the receiver/browser apparatus 2 to check whether the
trigger data it receives has been corrupted before
receipt. The protocol for the checksum is identical to
that used in the Internet Protocol and is further
explained in section 1.1.5 of the ATVEF specification.

The text string, expiry date/time and checksum
constituents of the trigger data are all formatted as
specified in section 1.1.5 of the ATVEF specification. It
is, however, noted that the complete string of the
trigger data as described above does not strictly comply
with section 1.1.5 of the ATVEF specification as it
contains the twelve-digit trigger index value rather than
a URL as such.

The service provider S1 injects, i.e. embeds, the
trigger data T1 into a serial digital interface (SDI)
video stream containing the television programme to be
broadcast. In the present embodiment, the video stream
is in an uncompressed full broadcast digital video format
known as CCIR 601, which uses a bit stream on a single
carrier. Particular portions of respective samples
within the bit stream correspond respectively to video or
audio content, and positions within the video portion of
the bit stream broadly correspond to particular lines of
the PAL analogue video format. In the present
embodiment, the trigger data is inserted into the video

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part of the bit stream that corresponds to one of the
vertical blanking interval (VBI) lines specified in PAL.

In the present embodiment, the trigger data is
inserted in correspondence to the required VBI line
pursuant to the ATVEF specification, so that the
receiver/browser apparatus 2 can later employ the ATVEF
protocols to extract the trigger data, as will be
explained in more detail below with reference to Figures
4 and 5. The service provider S1 injects the trigger data
into the programme bit stream using a "data bridge" as is
conventionally used to inject, for example, sub-titling
to television programmes.

The resulting bit stream including the trigger data
forms a programme feed P1 which the service provider S1
feeds to a multiplexer/MPEG-2 encoder 38, which
multiplexes different programmes to be broadcast. In the
present embodiment the multiplexer/MPEG-2 encoder 38 is
operated by the broadcaster.

The above operations are repeated in the case of
separate trigger data T2 for a further service provider
S2 so as to provide a programme feed P2 including the
trigger data which is forwarded to the multiplexer/MPEG-2
encoder 38. The trigger index value for the trigger data
T2 is 891234567891.

The multiplexer/MPEG-2 encoder 38 is operated in
conventional fashion in compliance with the MPEG-2
standard and the DVB standard. As is well known to the
person skilled in the art, the multiplexer/MPEG-2 encoder
38 extracts separate elementary datastreams from each
programme feed. The multiplexer/MPEG-2 encoder encodes

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the data according to the relevant specification in the MPEG-2 standard, i.e. according to the type of elementary datastream (video, audio or other). The multiplexer/MPEG-2 encoder also allocates, to each extracted elementary

5   datastream, a respective packet identification code (PID). The multiplexer/MPEG-2 encoder 38 further compiles a hierarchy of look-up tables comprising a programme association table (PAT) and a programme map table (PMT).

In the present embodiment, the broadcaster uses a

10   set-up menu of the multiplexer/MPEG-2 encoder 38 to specify that for programme feed P1 the data held in the specified VBI line, i.e. the trigger data T1, is to be extracted, encoded as per the DVB specification for teletext data, and allocated a separate PID (i.e. the

15   multiplexer/MPEG-2 encoder 38 effectively takes the trigger data T1 from the VBI line and translates it into DVB teletext data on a separate PID). The broadcaster carries out the same procedure for the programme feed P2.

The multiplexer/MPEG-2 encoder 38 forms a

20   multiplexed broadcast datastream 36, which is in packetised form with each packet of data identified by means of the above mentioned PIDs and forwards the multiplexed broadcast datastream 36 to the transmitter 8 for broadcasting as the broadcast signal 6.

25   When the service providers S1 and S2 provided the advance notification of their respective trigger data T1 and T2 to the broadcaster, they also indicated the website addresses that are to be associated with the trigger data. These website addresses are entered by

30   the broadcaster into the trigger schedule controller 32 which produces a look-up table 42. The trigger schedule

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controller 32 forwards the look-up table 42 to the
redirect server 20.

Figure 3 shows the contents of the look-up table 42.
The table associates each trigger index value 92 with a
website address 94 that has been specified for it. As
shown, the trigger index value 123456789123 from the
trigger data T1 is associated with the website address
www.abcw1.com, which is the website address served by
the website server W1, and which in the present
embodiment is commercially linked with an advertiser
whose advertisement forms the programme feed from service
provider S1. Similarly, the trigger index value
891234567891 from the trigger data T2 is associated with
the website address www.xyzw2.co.uk which is served by
the website server W2 and which provides content related
to the television programme being supplied by the service
provider S2.

Thus, referring back to Figure 1, it can be
appreciated that a given trigger index value included in
a specific television programme being broadcast as part
of the broadcast signal 6 is associated with a specific
website address as specified in the look-up table which
can be accessed at the redirect server 20.

Further details of the receiver/browser apparatus 2
will now be described with reference to Figure 4. The
receiver/browser apparatus 2 comprises a separate
receiver 50 and browser 52. The receiver 50 includes the
following items coupled in series as shown: the antenna
4, a tuner 54, a demodulator 56, a demultiplexer 58, an
MPEG decoder 60 and a digital to analogue converter 62.
The digital to analogue converter 62 provides an output

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to the browser 52 via a SCART connection 64.

In operation, the broadcast signal 6 is received by the antenna 4 and input to the tuner 54. The tuner 54 tunes to the appropriate RF frequency enabling it to

5   forward the tuned signal to the demodulator 56. The demodulator 56 demodulates the broadcast multiplexed datastream from the RF carrier frequency.

The demodulated multiplexed datastream is passed to the demultiplexer 58 which, under the control of a

10   microprocessor (not shown) demultiplexes the datastream using the PMT and PID data contained in the datastream in accordance with the DVB standard. Thereafter, the demultiplexed signal is passed to the MPEG decoder 60 for decoding and then onto the digital to analogue converter

15   62 where the data is converted into an analogue video signal for transmission over the SCART connection 64 to a video processor 66 of the browser 52. The video processor 66 is also coupled by a further SCART connection 68 to the television 10.

20   The browser 52 also comprises a central processing unit (CPU) 64 coupled to the video processor 66. The CPU 64 is also coupled to a memory 70, a modem 72 and an infrared sensor 74. The infrared sensor 74 is for receiving infrared signals 76 from an infrared keyboard

25   78. The modem 72 is coupled via a telephone line 80 to the PSTN 14.

In operation, the video processor 66 compiles the final video signal that is sent over the SCART connection 68 for presentation by the display of the television 10.

30   The video processor 66 operates under the control of the CPU 64. When the CPU 64 is operating in browser mode, it

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may for example instruct the video processor to display specific website data over the analogue video data that the video processor 66 is receiving from the receiver 50. However, in the absence of any such override instructions, the video processor simply forwards the analogue video data it is receiving from the receiver 50 to the television 10 for display.

The CPU 64 operates in a full browser mode by implementing and controlling a conventional Internet browser application. Accordingly, the modem 72 serves as a conventional modulator and demodulator of data to be transmitted and received over the telephone line 80 to the PSTN 14 and onto the Internet. The memory 70 stores algorithms and data employed by the CPU 64. Website pages received by the browser 52 are allocated to the video processor 66 to be displayed on the television 10. The infrared sensor 74 receives user inputs for browsing instructions from the infrared keyboard 78.

In addition, the browser 52 reacts to the trigger data contained in the broadcast signal 6, as will be described in more detail below with reference to Figure 5.

The above described arrangement of a separate receiver 50 and browser 52 allows a browser adapted to respond to trigger data contained in an analogue video signal to be operated in conjunction with a broadcast receiver 50 adapted to receive digital video broadcast. This further allows use of the ATVEF specification for detecting and processing triggers, which is specified in terms of analogue video, with trigger signals transmitted as part of a DVB broadcast.

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Figure 5 shows the processing operations performed
by the receiver 50, browser 52 and redirect server 20 in
this embodiment. At step S40 the receiver 50 receives and
processes the broadcast signal 6. The procedure for
5   processing the basic video and audio content of the
received broadcast signal 6 was described earlier with
reference to Figure 4. How this procedure is further
adapted to process the trigger data content in the
present embodiment will now be described in further
10   detail for the trigger data T1 included in the programme
feed P1.

As was described above, the trigger data T1 is
included in the broadcast signal 6 in the form of DVB
teletext data with its own PID allocated thereto. The
15   demultiplexer 58 extracts the trigger data on the basis
of this PID value. The MPEG decoder then decodes the
trigger data employing the usual protocol specified in
the DVB standard for DVB teletext data. The decoded
signal is forwarded to the digital to analogue converter
20   62, which converts the signal into analogue video format.
The trigger data is again located in the VBI lines.

At step S44 the receiver 50 feeds the analogue video
signal from the digital to analogue converter 62 via the
SCART connection 64 to the video processor 66 of the
25   browser 52.

At step S48, the video processor 66 analyses the
analogue video signal, and detects whether any data is
presently in the VBI lines. If the video processor 66
indeed detects trigger data in the VBI lines, then at
30   step S52 the video processor 66 extracts the data and
passes it to the CPU 64.

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At step S56 the CPU 64 checks the validity of the trigger data passed to it by the video processor 66. The CPU 64 checks the checksum value contained in the trigger data T1 against a checksum algorithm stored in the memory 70. The CPU 64 also checks the expiry date and time contained in the trigger data with its own system clock and data.

Provided that the checksum is correct and the expiry date and time of the trigger data has not been exceeded, then at step S60 the CPU 64 retrieves a video display page stored in the memory 70. This video display page is essentially a transparent page except for an icon on it. The CPU 64 forwards this page to the video processor 66. The CPU 64 also extracts the text data from the text field of the trigger data, and forwards the extracted text data to the video processor 66. As a further part of step 60, the CPU also extracts the trigger index value from the trigger data and places this value in the memory 70.

At step S64 the video processor 66 overlays the transparent page containing the icon and the extracted text data onto the analogue video signal it is receiving over the SCART connection 64. At step S68, the video processor 66 feeds the analogue video signal plus the overlaid icon and text over the SCART connection 68 to the television 10. At step S72 the television 10 continues to display the current programme as contained in the analogue video signal but with the above described icon and text overlaid on the picture.

It is noted that the overall receiver and browser arrangement has thus been triggered into a form of

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browser mode, as it is now providing an Internet-access
related function to the end user rather than merely
processing a television programme.

As was described earlier the text data of trigger
data T1 says "hit Return to find out more via the
Internet". In the present example the end user who is
watching the programme decides he would indeed like to
find out more information, and therefore he hits the
Return key on the infrared keyboard 78. The resulting
input to the infrared sensor 74 is detected by the CPU
64, i.e. at step S76 the CPU 64 receives the user input.

In response, at step S80 the CPU 64 retrieves the
trigger index value from the memory 70, and appends it to
the website address of the redirect server which the CPU
64 also retrieves from the memory 70. In the present
embodiment, the trigger index value is 123456789123. In
the present embodiment the URL of the redirect server is
www.redirect-server.com. The URL plus appendage is
therefore www.redirect-server.com/123456789123.

At step S82, the CPU 64 activates the browser
application and calls up the redirect server using this
appended URL after logging on to the ISP 16 via the modem
72 and the PSTN 14. This browser operation, and the
resulting routing of the connection to the redirect
server 20 from the ISP 16 is implemented in conventional
fashion, since the above-described URL plus appendage is
consistent with conventional URL protocols, where
appended data following the "forward slash" normally
indicates a sub-page of an initial website .

The redirect server 20 is however programmed to
recognise the appended data as a trigger index value

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rather than a sub-page, and at step S84 the redirect server extracts the trigger index value and compares it to the trigger index values 92 in the look-up table 42, thereby identifying the associated website address which is www.abcw1.com.

At step S88 the redirect server replies to the CPU 64 informing the CPU 64 of the identified website address, namely www.abcw1.com. At step S92, the CPU 64, which is already operating in browser mode, automatically calls up the identified website address www.abcw1.com via the modem 72, the PSTN 14, the ISP 16 and the Internet 18.

The website server W1 then responds in conventional manner by supplying the contents of a web page to the CPU 64 which forwards the web page to the video processor 66 for display on the television 10. The CPU 64 then continues to operate the browser 52 in conventional browser mode.

In the above embodiment the look-up table 42 simply associates a respective single website address with each trigger index value. In an alternative embodiment of the present invention, a single trigger index value can instead be associated with more than one website address, as follows. Each receiver/browser apparatus 2 is identified by means of a unique serial number. This serial number is held in the memory 70 of the respective browser 52. Different end users are allocated browsers 52 with different specified serial numbers in accordance with a commercial criteria. In particular, serial numbers less than 4,000,000 have been allocated to one group of end users, and serial numbers over 4,000,000 to another

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group. The service provider S2 specifies different web site addresses according to different serial numbers. As shown in Figure 6a, in the present embodiment the look-up table 42 contains, in association with the trigger index value 891234567891, different website addresses for serial numbers less than 4,000,000 and serial numbers greater than 4,000,000.

When the URL of the redirect server 20 and its appendage, (i.e. www.redirect-server.dom/891234567891) is forwarded to the redirect server via the ISP 16, the redirect server is also informed of the serial number of the browser 52 by the ISP 16. The ISP 16 previously acquires knowledge of the serial number of the browser 52 when the browser identifies itself by the serial number during an initial procedure of logging on to the ISP 16.

Thus, a browser of serial number less than 4,000,000 is connected to the website address www.xyzw2.co.uk served by the website server W2, whereas a browser of serial number greater than 4,000,000 is connected to the website address www.xyzw3.co.uk served by the website server W3.

In a further variation, instead of the look-up table containing serial number ranges, the serial numbers are divided into specific serial number categories which are included in the look-up table 42. For example, Figure 6b shows a look-up table 42 in which two categories of serial number are catered for. In this example each trigger index value 92 has a separate website address entry 94 for each serial number category 98, although, this can be a duplicate, i.e. in the example shown in Fig. 6b the service provider related to the index value

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123456789123 has no reason to distinguish according to
the serial number category of the browser, and hence the
same website address is provided for both serial number
categories 1 and 2.

5   The use of serial number categories allows greater
flexibility in the issuing of serial numbers, or of
handling already allocated serial numbers, since a
separate look-up table can be provided to the redirect
server 20 for indicating which serial numbers are
10   allocated to which category, and this can easily be
updated.

In each of the above embodiments where website
addresses can be varied according to serial number, a
range of commercial and other advantages result.   One
15   possibility is for the serial numbers to be distributed
according to an estimate or measure of the spending power
of the end user.   In this case website addresses can be
allocated to the different serial numbers, for example,
so that they relate to ranges of products at prices most
20   likely to be of interest to the corresponding end users.

Another possibility is for the serial numbers to be
organised on a geographical basis, in which case
different website addresses relating to, for example,
shops in different geographical areas could be employed.
25   Yet another possibility is that the serial numbers could
be allocated according to the type or capability of the
individual browsers 52, and the associated website
addresses could be specified according to the technical
compatibility of their content in relation to the
30   capabilities of the various browser types.

Also, different website addresses may be specified

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dependent upon the serial numbers, for a given trigger index value, for the purpose of reducing the number of users accessing a single website, i.e. to avoid website server overload. In this case, the same webpage content may be provided from the different website addresses/website servers. Moreover, this load reduction benefit may be achieved as an additional benefit when different website addresses are specified for a single trigger index value for the other purposes described above.

In the above embodiments employing the serial number of the receiver/browser apparatus, the serial number can be any form of unique identifier or class identifier of the apparatus which can be processed by the redirect server.

In the above embodiments, the expiry time and date entered in the date/time field of the trigger data is a specific time and date. If the CPU of the browser receives the trigger data after the specified expiry time and date, then it does not consider the trigger data to be valid and the prompt is not displayed to the user. This arrangement is suitable for programmes that are to be broadcast once only, and at a predetermined time and date. In other embodiments, it is necessary to accommodate the repeat transmission of a programme, such repeated transmission being either during one given day or for repeat a number of days or months later. One way of accommodating the repeated transmissions during one given day is to set the expiry time at twenty three hours, fifty nine minutes and 59 seconds of the given day. In order to accommodate the scenario of a repeat at

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a later date, an alternative embodiment can be employed
in which expiry dates are not included in the trigger
data and the CPU of the browser is not required to check
for such an expiry date. Alternatively, a code can be
included and the CPU programmed to recognise the code as
eliminating the requirement for the expiry date to be
checked.

In the above embodiments, the trigger index value is
a twelve digit number. In other embodiments, any other
suitable format can be employed.

In the above embodiments, trigger data was supplied
to individual service providers who injected the trigger
data into respective programme feeds. In other
embodiments, service providers inform the broadcaster of
the timing of particular programmes, and the broadcaster,
rather than the service provider, injects the trigger
data into the programme feeds when they are later
received from the service providers.

Also, in other embodiments, trigger data can be
incorporated at the time of original production of a
programme, thus obviating the later need to insert
trigger data.

More generally, it is to be appreciated that the
present invention can be applied to broadcast systems and
arrangements other than that shown in Figure 2, including
systems and arrangements comprising different component
parts and/or different interconnections, and commercial
or operational interactions, compared to those shown in
Figure 2. As such, the present invention is not limited
according to which technical means or commercial
arrangement of a broadcasting system is employed to

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coordinate and insert trigger data into programme feeds, broadcast the programmes, compile the look-up tables, and so on.

In the above embodiments the trigger data was included in the multiplexed broadcast datastream in the form of DVB teletext data to which a specific PID was allocated. In an alternative embodiment which nevertheless remains in compliance with the DVB standard, the trigger data is included in the multiplexed broadcast datastream in the form of DVB specified "private data" packet. In this case the MPEG decoder of the receiver is programmed to decode the particular content of the private data packet and adds appropriate VBI headers and footers so that the data can be detected by the video processor 66 of the browser 52.

In the above embodiments, the URL of the redirect server is input into the memory of the browser during manufacture. In other embodiments, the URL of the redirect server can be downloaded via the telephone connection or the broadcast connection under control of the CPU of the browser. An existing URL of the redirect server may be updated in this way.

In the above embodiments, the receiver/browser apparatus included a separate receiver complying with the DVB standard and a separate browser adapted to detect trigger data provided to it in the form specified by the ATVEF specification. In other embodiments, different combinations of analogue/digital broadcasting technology can be employed. For example, the browser can be adapted to recognise digital forms of the trigger data directly, i.e. not relying on the ATVEF specification or VBI lines.

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In this case, a separate receiver and browser may still be employed or, alternatively, a single MPEG or other digital video receiver and browser module could be employed. In yet further embodiments the television can be integrated with either the receiver, the browser or a combined receiver and browser module.

In other embodiments, digital video broadcasting protocols other than DVB or MPEG-2 can be employed.

In yet further embodiments, the television programmes and trigger data can be broadcast in analogue format. In this case, when continuing to use the ATVEF specification, the trigger data can be broadcast directly in the VBI lines.

In the above embodiments, the programme feeds and data signals were broadcast to the receiver by means of terrestrial RF broadcasts. In other embodiments such broadcasts can be performed by satellite broadcast, or over a cable network. Furthermore, two or more of terrestrial, satellite or cable broadcasting can be employed in combination.

In the above embodiments the receiver/browser apparatus was coupled to the ISP via a PSTN. In other embodiments any suitable connection can be employed, including for example a digital subscriber line (DSL).

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CLAIMS:

1.   A method of generating video broadcast data for
transmission, the method comprising a video broadcast
datastream generator:

        receiving a datastream comprising programme data;

        receiving trigger data for triggering a receiver
apparatus to enter a browser mode, the trigger data
comprising a public address identifying the location on
a network of data associated with said programme data;

        substituting said public address with a trigger
index value; and

        inserting said trigger index value into said
datastream to form the video broadcast datastream to be
broadcast.

2.   A method according to claim 1, further comprising
the video broadcast datastream generator:

        receiving further datastreams comprising further
programme data;

        receiving further associated trigger data including
one or more further public addresses identifying the
respective locations of respective data associated with
said further programme data;

        substituting said further public addresses with one
or more further trigger index values; and

        inserting said further trigger index values into
said datastreams comprising further programme data.

3.   A method according to claim 1 or claim 2, wherein
the or each trigger index is inserted into the or each

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datastream so as to correspond to a vertical blanking interval, VBI, line of an analogue format of the or each datastream.

5   4.   A method according to any preceding claim, further comprising the video broadcast datastream generator encoding the datastream comprising programme data and any further datastreams comprising further programme data into the MPEG-2 format.

10

5.   A method according to claim 4, further comprising the video broadcast datastream generator formatting the trigger data as digital video broadcast, DVB, teletext data.

15

6.   A method according to claim 4, further comprising the video broadcast datastream generator formatting the trigger data as digital video broadcast, DVB, private message data.

20

7.   A method according to any preceding claim, further comprising the video broadcast datastream generator forming a multiplexed datastream comprising either the datastream comprising programme data or the datastreams
25   comprising programme data and further programme data.

8.   A method according to claim 7, further comprising the video broadcast datastream generator transmitting the multiplexed datastream.

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9.   A   method   according   to   claim   8,   wherein   the

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multiplexed datastream is transmitted over a terrestrial
broadcasting system.

10.   A   method   according   to   claim   8,   wherein   the
multiplexed datastream is transmitted over a satellite
broadcasting system.

11.   A   method   according   to   claim   8,   wherein   the
multiplexed   datastream   is   transmitted   over   a   cable-
network broadcasting system.

12.   A method according to any preceding claim, wherein
each of one or more trigger index values is associated
with a respective plurality of public addresses.

13.   A method according to any preceding claim, further
comprising   the   video   broadcast   datastream   generator
providing look-up data to a redirect server, the look-up
data associating the or each trigger index value with its
respective one or more public addresses.

14.   A method according to any preceding claim wherein
the or each public address comprises a website address
in the form of a universal resource locator, URL.

15.   A method according to any preceding claim wherein
the trigger data includes expiry data indicative of a
time period during which the trigger data is valid.

16.   A method of processing video broadcast data, the
method comprising a receiving apparatus:

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　　　　receiving a datastream comprising programme data and
trigger data comprising a trigger index value for
triggering the receiving apparatus to enter a browser
mode;

5　　　　　　extracting the trigger index value from the
datastream;

　　　　　　reading from a public address store a public
address of a redirect server; and

　　　　　　attaching to the public address the extracted

10　　　trigger index value for forwarding to the redirect
server.

17. A method according to claim 16, wherein the public
address is a universal resource locator, URL, and wherein

15　　　the attaching step comprises combining the extracted
trigger index value with the stored universal resource
locator to form an extended universal resource locator
and wherein the method further comprises the receiving
apparatus forwarding the extended universal resource

20　　　locator to the redirect server.

18.　A method according to claim 16 or 17, wherein the
datastream is in an analogue format and the trigger data
is extracted from a vertical blanking interval, VBI,

25　　　line.

19.　A method according to claim 18, wherein the
datastream is originally received in a digital broadcast
form, the method further comprising the receiving

30　　　apparatus converting the digital broadcast form into the
analogue format.

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20. A method according to claim 19, wherein the datastream is encoded in the MPEG-2 format.

21. A method according to claim 20, wherein the trigger data is formatted as digital video broadcast, DVB, teletext data.

22. A method according to claim 21, wherein the trigger data is formatted as digital video broadcast, DVB, private message data.

23. A method according to any of claims 16 to 22, further comprising the receiving apparatus receiving the programme data and trigger data as part of a multiplexed datastream, and extracting the programme datastream and trigger data from the multiplexed datastream.

24. A method according to any of claims 16 to 23, wherein the video broadcast data is received from a terrestrial broadcast.

25. A method according to any of claims 16 to 23, wherein the video broadcast data is received from a satellite broadcast.

26. A method according to any of claims 16 to 23, wherein the video broadcast data is received from a cable-network broadcast.

27 A method according to any of claims 16 to 26, further comprising the receiving apparatus providing a

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prompt to a viewer of the programme in response to the trigger data.

28.   A method according to claim 27, wherein the prompt comprises an icon or text data or an icon and text data overlaid on the programme as displayed on a television display.

29.   A method according to claim 28, wherein the text data comprises text data extracted from the trigger data.

30.   A method according to any of claims 27 to 29, further comprising the receiving apparatus entering a browser mode in response to receipt of a user input related to the prompt.

31.   A method according to claim 30, wherein the step of attaching to the public address the extracted trigger index value is performed as part of the step of entering the browser mode.

32.   A method according to claim 31, further comprising the receiving apparatus receiving from the redirect server a public address, identifying the location on a network, of data associated with said programme data.

33.   A method according to claim 32 wherein the received public address is a website address in the form of a universal resource locator and the associated data is the web content at the website address.

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34. A method according to claim 33, further comprising the receiving apparatus automatically accessing the indicated website address in the browser mode.

35. A method according to claim 34, further comprising the receiving apparatus processing the web content received from the indicated website address and forwarding it to a television for display.

36. A method according to any of claims 31 to 35, wherein the receiving apparatus has a serial number and the method further comprises the receiving apparatus making available its serial number for forwarding to the redirect server in association with the extracted trigger index.

37. A method according to any of claims 16 to 36 further comprising the receiving apparatus extracting expiry data from the trigger data and comparing the extracted expiry data with locally determined time and date information to determine if the trigger data is valid.

38. A method of providing a public address to a browser, the method comprising a redirect server:

receiving a trigger index value from the browser;

accessing look-up data associating trigger index values that may be contained in a video broadcast with public addresses identifying locations on a network of data associated with programme data contained within the video broadcast;

comparing the received trigger index value with the

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look-up data to identify an associated public address; and

communicating the public address to the browser.

39. A method according to claim 38 wherein the public addresses comprise website addresses in the form of universal resource locators and the corresponding data comprise associated web content.

40. A method according to claim 38 or 39, further comprising the redirect server receiving a serial number for the browser, and wherein the step of comparing the received trigger index value with the look-up data comprises the redirect server identifying an address in dependence upon the received serial number from amongst a plurality of addresses associated with the received trigger index value.

41. A system for generating video broadcast data for transmission, the system comprising:

means for receiving a datastream comprising programme data;

means for receiving trigger data for triggering a receiver apparatus to enter a browse mode, trigger data comprising a public address identifying the location on the network of data associated with said programme data;

means for substituting said public address with a trigger index value; and

means for inserting said trigger index value into said data stream.

42. A system according to claim 41, further comprising:

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means for receiving further datastreams comprising
further programme data;

means for receiving further associated trigger data
including one or more further public addresses
identifying the respective locations of respective data
associated with said further programme data;

means for substituting said further public addresses
with one or more further trigger index values; and

means for inserting said further trigger index
values into said datastreams comprising further programme
data.

43. A system according to claim 41 or claim 42, wherein
the or each trigger index value is inserted into the or
each datastream so as to correspond to a vertical
blanking interval, VBI, line of an analogue format of the
or each datastream.

44. A system according to any of claims 41 to 43,
further comprising means for encoding the datastream
comprising programme data and any further datastreams
comprising further programme data into the MPEG-2 format.

45. A system according to claim 44, further comprising
means for formatting the trigger data as digital video
broadcast, DVB, teletext data.

46. A system according to claim 44, further comprising
means for formatting the trigger data as digital video
broadcast, DVB, private message data.

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47.   A   system   according   to   any   of   claims   41   to   46,
further comprising a multiplexer for forming a multiplex
datastream comprising either the datastream comprising
programme data or the datastreams comprising programme
5   data and further programme data.

48.   A system according to claim 47, further comprising
a transmitter for transmitting the multiplex datastream.

10   49.   A   system   according   to   claim   48,   wherein   the
transmitter is a terrestrial broadcast transmitter.

50.   A   system   according   to   claim   48,   wherein   the
transmitter is a satellite broadcast transmitter.

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51.   A   system   according   to   claim   48,   wherein   the
transmitter is a cable-network broadcast transmitter.

52.   A system according to any one of claims 41 to 51,
20   further comprising means for specifying look-up data
associating the or each trigger index value with a
respective one or more public addresses.

53.   Apparatus according to claim 52, wherein the means
25   for specifying the look-up data is operable to specify
look-up data associating each of one or more trigger
index values with a respective plurality of public
addresses.

30   54.   A system according to claim 52 or claim 53 wherein
the or each public address is a website address in the

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form of a universal resource locator, URL.

55. A system according to any of claims 53 to 54, further comprising means for providing the look-up data to a redirect server.

56. A system according to any of claims 41 to 55, wherein the trigger data includes expiry data indicative of a time period during which the trigger data is valid.

57. Apparatus for processing video broadcast data, the apparatus comprising:

means for receiving a datastream comprising programme data and trigger data comprising a trigger index value for triggering the apparatus to enter a browser mode;

means for extracting the trigger index value from the datastream;

means for reading from a public address store a public address of a redirect server; and

means for attaching to the public address the extracted trigger index value for forwarding to the redirect server.

58. Apparatus according to claim 57, wherein the stored public address is a website address in the form of a universal resource locator, URL, and wherein the attaching means is operable to combine the extracted trigger index value with the stored universal resource locator to form an extended universal resource locator, and wherein the apparatus further comprises means for

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forwarding the extended universal resource locator to the redirect server.

59.   Apparatus according to claim 57 or claim 58, wherein the data stream is in an analogue format and the trigger index value is extracted from a vertical blanking interval, VBI, line.

60.   Apparatus according to claim 59, further comprising means for receiving an original version of the datastream in a digital broadcast form, and means for converting the digital broadcast form into the analogue format.

61.   Apparatus according to claim 60, wherein the means for receiving a datastream is operable to receive a datastream encoded in the MPEG-2 format and the means for extracting the trigger index value from the datastream is operable to extract the trigger index value from a datastream encoded in the MPEG-2 format.

62.   Apparatus according to claim 61, wherein the means for extracting the trigger index value from the datastream is operable to extract the trigger index value when formatted as digital video broadcast, DVB, teletext data.

63.   Apparatus according to claim 61, wherein the means for extracting the trigger index value from the datastream is operable to extract the trigger index value when formatted as digital video broadcast, DVB, private message data.

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64. Apparatus according to any one of claims 57 to 63 further comprising means for receiving the programme data and trigger data as part of a multiplex datastream, and means for extracting the programme data and trigger index value from the multiplexed datastream.

65. Apparatus according to any of claims 57 to 64, adapted to receive the video broadcast data from a terrestrial broadcast.

66. Apparatus according to any of claims 57 to 64, adapted to receive the video broadcast data from a satellite broadcast.

67. Apparatus according to any of claims 57 to 64, adapted to receive the video broadcast data from a cable-network broadcast.

68. Apparatus according to any of claims 57 to 67, further comprising means for providing a prompt to a viewer of the program corresponding to said programme data in response to the trigger data.

69. Apparatus according to claim 68, wherein the means for providing a prompt is operable to provide a prompt comprising an icon or text data or an icon and text data overlaid on the programme when displayed on a television display.

70. Apparatus according to claim 69, further comprising means for extracting text data from the trigger data.

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71. Apparatus according to any of claims 68 to 70, further comprising browser means adapted to become operational in response to receipt of a user input related to the prompt.

72. Apparatus according to claim 71, wherein the browser means is operable to forward the extracted trigger index value to a redirect server.

73. Apparatus according to claim 62, further comprising means for receiving an indication of a public address from the redirect server.

74. Apparatus according to claim 73, wherein the browser means is adapted to automatically access the indicated public address.

75. Apparatus according to claim 74, wherein the public address is a website address in the form of a universal resource locator.

76. Apparatus according to claim 75, further comprising means for processing web content received from the indicated website address and means for forwarding the web content to a television for display.

77. Apparatus according to any of claims 72 to 76, wherein the apparatus has an associated serial number and further comprises means for forwarding the serial number to the redirect server in association with the extracted trigger index.

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78. A redirect server comprising:

means for receiving a trigger index value from a browser;

means for accessing look-up data, associating trigger index values that may be contained in a video broadcast with public addresses identifying locations on a network of data associated with programme data contained within the video broadcast;

means for comparing the received trigger index value with the look-up data to identify an associated public address; and

means for communicating the associated public address to the browser.

79. A redirect server according to claim 78 wherein the public addresses comprise website addresses in the form of universal resource locators and the corresponding data comprise associated web content.

80. A redirect server according to claim 78 or claim 79, further comprising means for receiving a serial number of the browser, and wherein the means for comparing the received trigger index value with the look-up data is operable to identify an address in dependence upon the received serial number from amongst a plurality of addresses associated by the look-up data with the received trigger index value.

81. A video broadcasting system, comprising a system according to any of claims 41 to 56 and apparatus according to any of claims 57 to 77.

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82. A video broadcasting system, comprising a system according to any of claims 41 to 56 and a redirect server according to any of claims 78 to 80.

83. An information network, comprising apparatus according to any of claims 57 to 77 and a redirect server according to any of claims 78 to 80.

84. A video broadcasting and information network system, comprising:

a system according to any of claims 41 to 56;

apparatus according to any of claims 57 to 77; and

a redirect server according to any of claims 78 to 80.

85. A signal comprising data for a broadcast programme and trigger data for triggering a receiver apparatus to enter a browser mode, wherein the trigger data comprises a trigger index value.

86. A signal comprising video broadcast data generated using a generating method in accordance with any of claims 1 to 15.

87. Apparatus for modifying a video broadcast datastream representing a television programme, comprising means for inserting into the datastream trigger data for causing a television broadcast receiving apparatus to enter a browser mode, the trigger data comprising code data and directing data for directing the apparatus to a location at which the code data is associated with a URL to enable

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the receiving apparatus to log onto the URL so that a web page can be forwarded to the receiving apparatus without the URL being made available to the receiving apparatus before the receiving apparatus is directed to the location at which the code data is associated with a URL.

WEBSITE SERVER W1

WEBSITE SERVER W2

WEBSITE SERVER W3

INTERNET

18

ISP

16

REDIRECT SERVER

20

PSTN

14

TV

10

RECEIVER/ BROWSER

2

ANTENNA

4

USER INPUT

12

BROADCAST SIGNAL

6

TRANSMITTER

8
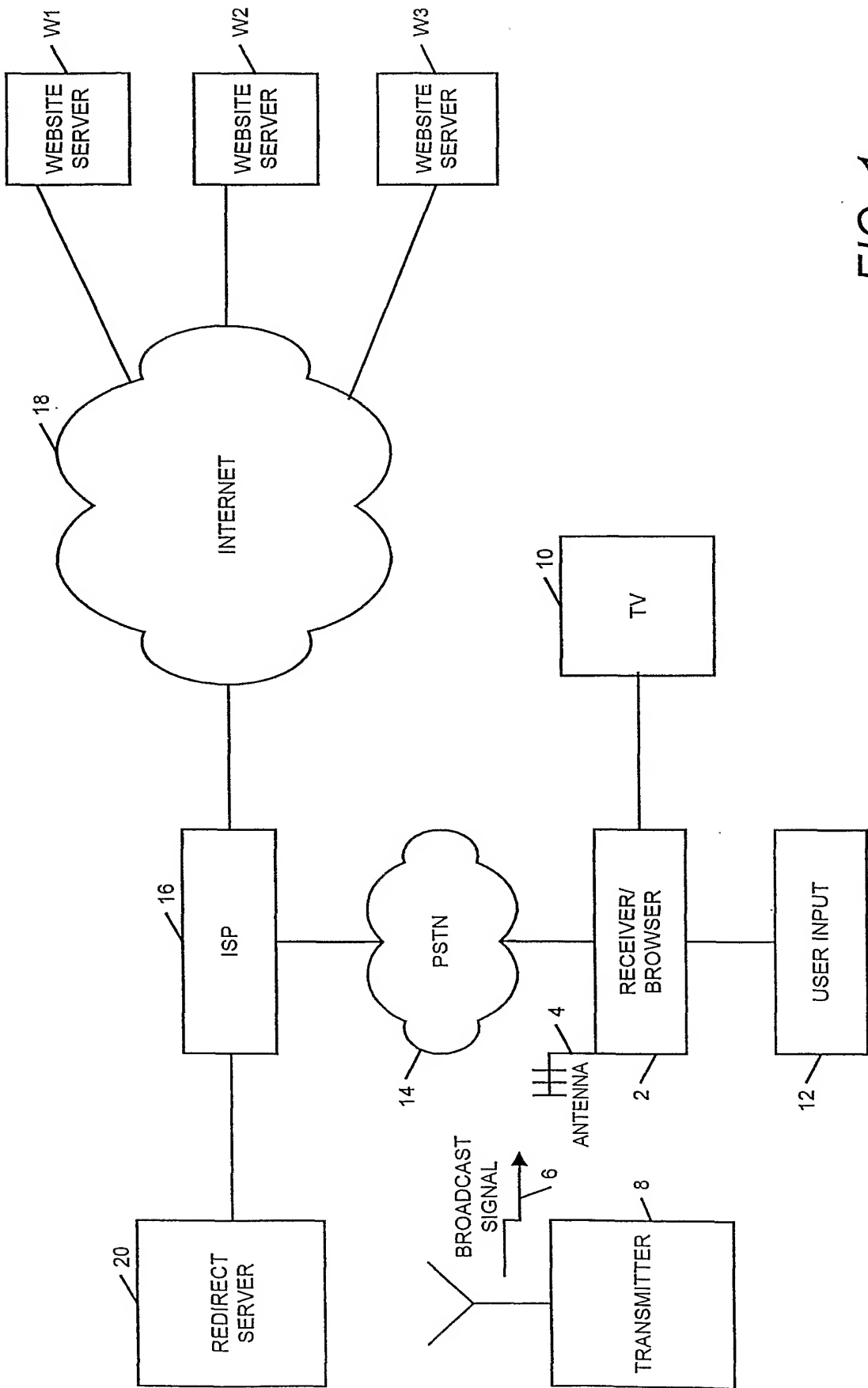
FIG. 1
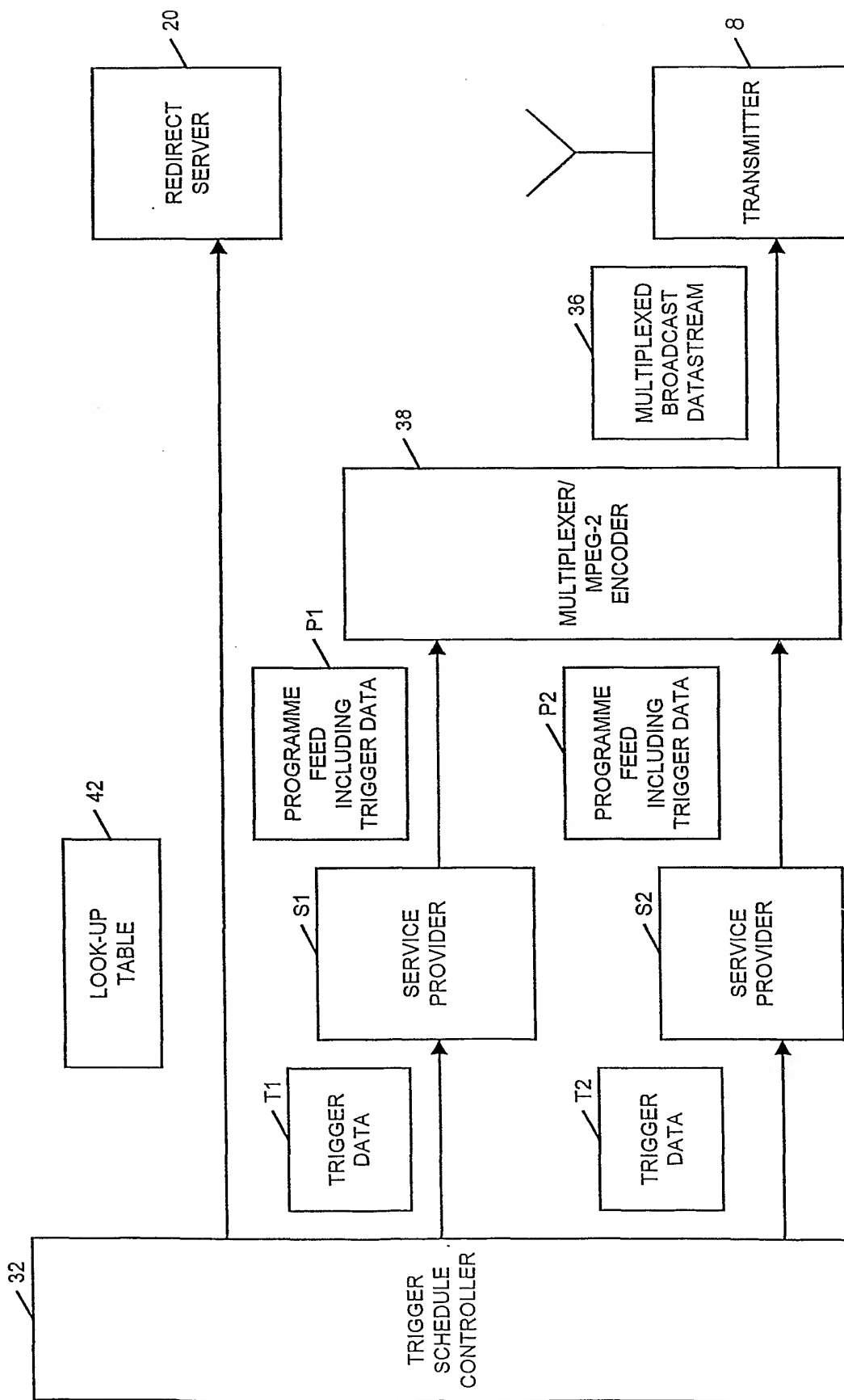
FIG. 2

FIG. 3

INDEX	WEBSITE ADDRESS
92	94
123456789123	www.abcw1.com
891234567891	www.xyzw2.co.uk

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FIG. 6a

INDEX	SERIAL NUMBER	WEBSITE ADDRESS
92	96	94
123456789123	all	www.abcw1.com
891234567891	<4,000,000	www.xyzw2.co.uk
	>4,000,000	www.xyzw3.co.uk

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FIG. 6b

INDEX	SERIAL NUMBER CATEGORY	WEBSITE ADDRESS
92	98	94
123456789123	1	www.abcw1.com
891234567891	2	www.abcw1.com
	1	www.xyzw2.co.uk
	2	www.xyzw3.co.uk

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FIG. 4

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                        ┌─────────────┐
                        │    START    │
                        └─────────────┘
                               │
                               ▼
     ┌──────────────────────────────────────────────────────┐ ╮ S40
     │   RECEIVER RECEIVES AND PROCESSES BROADCAST SIGNAL     │
     └──────────────────────────────────────────────────────┘
                               │
                               ▼
     ┌──────────────────────────────────────────────────────┐ ╮ S44
     │RECEIVER FEEDS ANALOGUE  VIDEO SIGNAL TO VIDEO PROCESSOR│
     │                    OF BROWSER                          │
     └──────────────────────────────────────────────────────┘
                               │
                               ▼
     ┌──────────────────────────────────────────────────────┐ ╮ S48
     │         VIDEO PROCESSOR DETECTS TRIGGER DATA           │
     └──────────────────────────────────────────────────────┘
                               │
                               ▼
     ┌──────────────────────────────────────────────────────┐ ╮ S52
     │       VIDEO PROCESSOR FORWARDS TRIGGER DATA TO CPU     │
     └──────────────────────────────────────────────────────┘
                               │
                               ▼
     ┌──────────────────────────────────────────────────────┐ ╮ S56
     │           CPU CHECKS VALIDITY OF TRIGGER DATA          │
     └──────────────────────────────────────────────────────┘
                               │
                               ▼
     ┌──────────────────────────────────────────────────────┐ ╮ S60
     │   CPU FORWARDS ICON PAGE AND TEXT TO VIDEO PROCESSOR   │
     │        AND STORES TRIGGER INDEX VALUE IN MEMORY        │
     └──────────────────────────────────────────────────────┘
                               │
                               ▼
     ┌──────────────────────────────────────────────────────┐ ╮ S64
     │ VIDEO PROCESSOR OVERLAYS ICON AND TEXT ONTO ANALOGUE   │
     │                   VIDEO SIGNAL                         │
     └──────────────────────────────────────────────────────┘
                               │
                               ▼
     ┌──────────────────────────────────────────────────────┐ ╮ S68
     │ VIDEO PROCESSOR FEEDS ANALOGUE VIDEO SIGNAL AND ANY    │
     │            OVERLAIN ICON AND TEXT TO TV                │
     └──────────────────────────────────────────────────────┘
                               │
                               ▼
     ┌──────────────────────────────────────────────────────┐ ╮ S72
     │    TV DISPLAYS VIDEO AND ANY OVERLAIN ICON AND TEXT    │
     └──────────────────────────────────────────────────────┘
                               │
                               ▼
     ┌──────────────────────────────────────────────────────┐ ╮ S76
     │                CPU RECEIVES USER INPUT                 │
     └──────────────────────────────────────────────────────┘
                               │
                               ▼
     ┌──────────────────────────────────────────────────────┐ ╮ S80
     │ CPU APPENDS TRIGGER INDEX VALUE TO URL OF REDIRECT     │
     │                      SERVER                            │
     └──────────────────────────────────────────────────────┘
                               │
                               ▼
     ┌──────────────────────────────────────────────────────┐ ╮ S82
     │      CPU FORWARDS APPENDED URL TO REDIRECT SERVER      │
     └──────────────────────────────────────────────────────┘
                               │
                               ▼
     ┌──────────────────────────────────────────────────────┐ ╮ S84
     │ REDIRECT SERVER EXTRACTS THE TRIGGER INDEX VALUE AND   │
     │ COMPARES TO LOOK-UP TABLE TO IDENTIFY ASSOCIATED       │
     │                  WEBSITE ADDRESS                       │
     └──────────────────────────────────────────────────────┘
                               │
                               ▼
     ┌──────────────────────────────────────────────────────┐ ╮ S88
     │ REDIRECT SERVER REPLIES TO CPU WITH IDENTITY OF        │
     │           ASSOCIATED WEBSITE ADDRESS                   │
     └──────────────────────────────────────────────────────┘
                               │
                               ▼
     ┌──────────────────────────────────────────────────────┐ ╮ S92
     │ CPU CONTROLS AUTOMATIC RETRIEVAL AND DISPLAY OF        │
     │ WEBSITE CONTENT FROM THE IDENTIFIED WEBSITE ADDRESS    │
     └──────────────────────────────────────────────────────┘
                               │
                               ▼
                        ┌─────────────┐
                        │     END     │
                        └─────────────┘
```

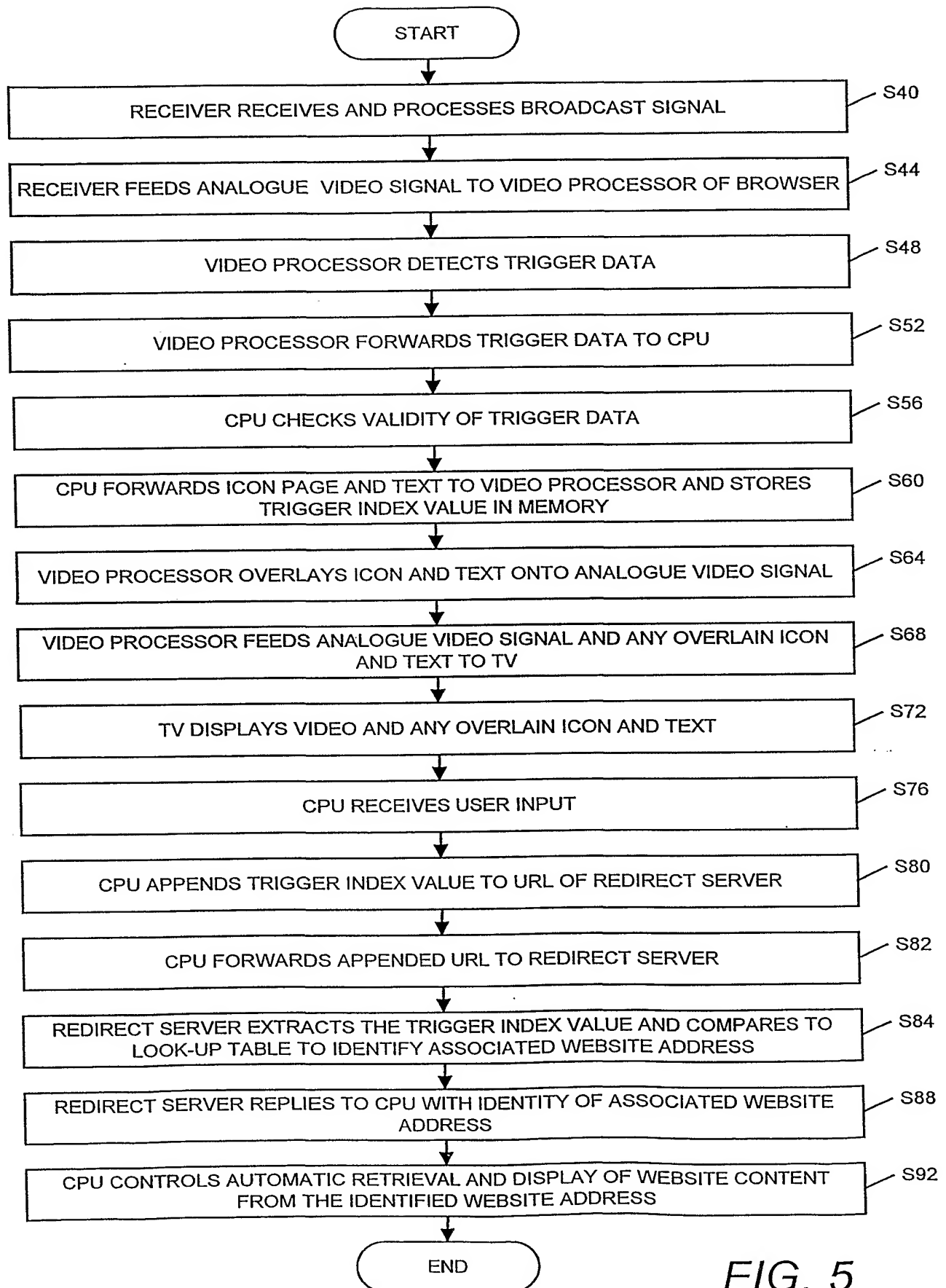*FIG. 5*

INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7   H04N7/173   H04N7/24

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7   H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 00 16205 A (DIGITALCONVERGENCE) 23 March 2000 (2000-03-23) abstract page 2, line 11 - line 24 page 3, line 2 - line 8 page 5, line 5 - line 12 page 9, line 3 - line 17 ———	1,2, 12-14, 16,17, 24,38, 39,41, 42, 52-55, 57,58, 65,78, 79, 81-83, 85-87

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[X] Further documents are listed in the continuation of box C.   [X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

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Date of the actual completion of the international search	Date of mailing of the international search report
30 January 2002	05/02/2002

Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Dockhorn, H

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